



bEhaVioral Insights anD Effective eNErgy policy acTions

An EVIDENT policy brief

## Join the energy efficiency adventure with EVIDENT's serious game!

### HIGHLIGHTS

- The European Union is increasingly focusing on energy efficiency, with the European Green Deal and the Energy Efficiency Directive setting ambitious targets for reducing energy consumption.
- Behavioural interventions such as serious games can significantly reduce residential energy consumption.
- Serious games use gaming elements in educational or skill development activities. They have been proven effective for decreasing energy usage.
- The EVIDENT research project's serious game promotes energy efficiency by offering practical advice in a user-friendly format, while also gathering valuable data for scientific analysis.

### The EVIDENT serious game

The EVIDENT project ('bEhaVioral Insights anD Effective eNErgy policy acTions') aims to provide new insights relevant for energy efficient policy interventions. The project focuses on identifying and evaluating the heuristics and behavioral biases that impact consumer decision-making regarding energy efficiency. Through surveys, serious games, and field trials, the project aims to assess and recommend policy measures for improving energy efficiency, with the goal of reducing energy consumption and promoting the adoption of energy-efficient technologies. The EVIDENT consortium comprises nine project partners and has received funding from the European Union's Horizon 2020 research and innovation programme.

Behavioural interventions, such as informational nudges, have become an increasingly popular strategy in demand-side energy management. Serious games which use gaming elements in educational or skill development activities, rather than solely for entertainment purposes, are an example of behavioural interventions which engage participants.

The academic literature indicates that serious games provide positive effects, with an average decrease in energy usage of

9.9% in public and educational environments, 18.4% in commercial environments, and 15.2% in residential environments (for an overview see Delemere and Liston, 2022).

Figure 1 – The EVIDENT serious game

Play the serious game <https://evident-h2020.eu/seriousgame/>



The EVIDENT serious game can be an effective tool for promoting energy efficiency. The game offers practical advice in a user-friendly format, while also gathering valuable data

for scientific analysis. The game replicates a setting that simulates daily routines and presents the player with a range of decisions related to household energy consumption and management.

The game aims to assess how socio-demographic factors, environmental literacy, and financial literacy influence consumer willingness to pay for the repair of home appliances. Additionally, it seeks to determine the impact of information and education delivered through the serious game on consumer decision-making regarding in-game and real-world repair/replace choices.

The experiment includes demographic information, financial literacy, environmental literacy, and a serious game. The demographics information allows for a personalized gameplay experience.

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### Initial results

Over 1000 individuals have taken part in the EVIDENT serious game, with the majority favoring the web application (83%) over the mobile app.

Preliminary results from the game show promising insights into the relationships between environmental and financial literacy, consumer decision-making, and willingness to adopt energy-efficient practices.

The study has demonstrated the impact of age, income, employment status, and residential situation on environmental and financial literacy, as well as the influence of these factors on consumer choices regarding energy-efficient appliances. Among other results we can already highlight:

- Participants exhibit high levels of overall environmental literacy and awareness, but lower levels of environmental knowledge and action
- Older individuals are more likely to take action to support the environment
- Surveyed individuals demonstrate high financial knowledge and confidence, with a high tolerance for financial risks
- Providing information about financial implications increases likelihood of choosing more efficient appliances

- Stronger environmental attitudes are linked to decreased willingness to pay for repairs, suggesting that environmental concerns alone may not drive behavior change

The study also found mixed effects for other aspects of environmental literacy and financial knowledge on willingness to pay for repairs. The full results are currently being published in scientific journals and will be available on the project website.

**Recommendations for policy makers**

- Develop environmental education programs to address specific knowledge gaps and enhance decision-making skills.
- Collaborate with financial institutions to implement financial literacy programs that empower individuals who are unemployed or have lower incomes.
- Establish policies to incentivize the purchase of energy-efficient appliances through tax credits, rebates, or subsidies.
- Customize repair and replacement policies to the preferences and financial capacities of different groups.
- Undertake further research to explore the interplay between environmental attitudes, financial knowledge, and consumer behaviour.

More details and recommendations will be available the project website: <https://evident-h2020.eu/>

Figure 2 – Example of affirmation of choices in the serious game



### Find out more

The EVIDENT project is actively pursuing research on serious games and other tools for understanding and influencing energy behaviors. To stay informed and up-to-date with EVIDENT:

Visit our website <https://evident-h2020.eu/>

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Figure 3 – Examples from the EVIDENT serious game

Source: <https://evident-h2020.eu/seriousgame/>



## Selected literature

Delemere, E., and Liston, P. 2022. "Exploring the use of behavioural techniques in serious games for energy efficiency: A systematic review and content analysis." *Behavior and Social Issues*, 1-29.

Delemere, E. and Liston, P. 2024. "Empowering consumers to repair: The utility and acceptability of a serious game to examine decision-making behaviour regarding home appliances in Ireland." *Energy Research & Social Science*, 109, 103428. <https://doi.org/10.1016/j.erss.2024.103428>

Delemere, E., Liston, P., Karypidis, P.-A., & Pragidis, I. (2023). EVIDENT H2020 – EVIDENT Serious Games Dataset (0.1.0) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.7956164>

EVIDENT D2.2, D2.3, D3.1, D3.2, D4.2, D5.1 available at <https://evident-h2020.eu/deliverables/>

Lytos, A. et al. 2022. "The EVIDENT Platform: Leveraging Crowdsourcing Approaches for Assessing Consumers Behavior," 2022 2nd International Conference on Energy Transition in the Mediterranean Area (SyNERGY MED), Thessaloniki, Greece, pp. 1-6. <https://shorturl.at/mtCGQ>

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## Materials for researchers

Methodologies: For technical details on the EVIDENT serious game, please see the project's deliverables [D2.2](#), [D2.3](#), [D3.1](#) and [D3.2](#). Updated results will be published in D4.3 which will soon be available on the EVIDENT website: <https://evident-h2020.eu/deliverables/>

Data: The EVIDENT serious game dataset is available on Zenodo: <https://doi.org/10.5281/zenodo.7956164>

Create your own: The EVIDENT Platform allows everyone to create their own serious game, at no cost. Additionally, one can create surveys, convey general information on energy efficiency, and share studies. Instructions on creating your own serious game are available at <https://evident-h2020.eu/unity/>

[Lytos et al. \(2022\)](#) provide technical details on the platform.

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